

Montgomery County Fire and Rescue Service

After Action Report

Severe Weather Event July 30, 2016

Operational Plan

On July 30, 2016, a heavy rain event passed through northern Montgomery County. Though the magnitude of the storm was forecast, it was thought to be a quick moving event which would have a less severe impact on the region. Operationally, it was decided units would remain in place, non-dedicated and would respond to incidents as they occurred. When the storm hit, the amount of rain that fell surpassed all expectations.

Resources

Montgomery County Fire & Rescue Services (MCFRS) provides for the staffing of two Swift Water Boats at Fire Station 10 and two Swift Water Boats at Fire Station 30. These units are designated SW710, SW710B, SW730 and SW730B respectively. Minimum staffing for these assets consists of 1 Swift Water Boat Operator (SWBO) and 1 Swift Water Boat Crew member (SWBC) for each boat. Fire Station 25 is the only other station in the county housing Swift Water capabilities though there is no minimum staffing requirement and asset availability is not guaranteed. When staffing is available, this unit can be placed in service as SW725.

In addition, the county has 7 non-swift water boats deployed in the following locations:

- Station 4 – BT704
- Station 14 – BT714 and BT714B
- Station 25 – BT725 (except as noted above)
- Station 29 – BT729
- Station 31 – BT731
- Station 40 – BT740

There is no guaranteed staffing for these boats. Personnel must be certified to either boat operator (BO) or boat crew (BC) to utilize these boats on an incident. This is a lower level of training than required for swift water certification and does not require any ongoing refresher or recertification training to maintain. These units are for dispatch to inland, still water events (i.e. lakes or ponds), or for specific areas of the Potomac River with strict guidelines pertaining to allowable water levels. Dispatch protocol does allow for these units to be sent to calls that are outside their operating parameters. The rationale for this is to provide additional resources to the scene in terms of equipment and knowledgeable personnel. While there is no strict definition of what constitutes swift water, water over two feet deep that is flowing at a rate greater than one knot (1.15 mph) and occurring in a natural water course, flood control channel, or a flood-related

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environment is informally recognized in the rescue industry as the standard. MCFRS further defines ALL flooding events as swift water events.

Summary of Incident Operations

Flood operations began when the first incident was dispatched at 20:16:24 and ended when the final unit was cleared at 23:38:00. As the magnitude of the event became apparent, SW710, SW710B, SW730 and SW730B were dedicated to inland water rescue calls. Additionally, BT725 was staffed with a complete Swift Water qualified crew. For unknown reasons it remained listed as BT725 and not recognized as SW725 for dispatch purposes. Also, two volunteers, both SWBC, were available to staff the boat at Station 40, but without a SWBO they were unable to place it in service as a swift water resource. In all, there were 11 incidents (1 incident was dispatched twice) in under 2 hours resulting in 107 separate unit responses.

- 1 mutual aid to Howard County (SW710/SW710B) recalled by Montgomery County
- 5 good intent calls (self-rescue prior to arrival or disabled/abandoned vehicles with no victims)
- 2 rescues of victims by fire department personnel without assistance of swift water units
- 3 rescues with swift water personnel either performing the rescue or on scene in another capacity

Incident #16-0094506 (8900 Watkins Rd/23300 Woodfield Rd)

Units on scene:

- BT729	- BT731	- C713B	- C717B
- M713	- PE713	- RS729	- T734

MCFRS narrowly avoided a potentially catastrophic event when non-swift water personnel attempted a rescue of two civilians stranded in their car in high water. Personnel deployed a Jon boat (small, flat-bottomed metal boat) with a rope attached to the bow and were attempting to paddle out to the stranded car. The current overwhelmed their ability to maintain control using only paddles and pinned the boat against the guardrail. The upstream side of boat was pulled down by the current and the boat flooded. The boat remained pinned against the guardrail and the 3 personnel were essentially pinned into their boat by the force of the water. Only when the water receded were they able to right the boat and then actually rescue the victim.

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Issues to note:

- None of the 3 personnel were swift water qualified and 1 of them did not have any boat training at all, but was still ordered into the boat.
- Technique - there are very few circumstances that would warrant tethering a boat in a swift water environment. This is something known to personnel who operate in swift water but is not part of the curriculum for standard boat operators (BO) or boat crew (BC) members.
- There was a SWBC member on scene on the opposite side of the flooded road. This individual knew to mark the waterline and quickly realized the water was receding. He reported this to his unit officer (he was assigned to a piece of fire apparatus and not part of a designated swift water unit). He also advised his officer that the better plan would be for all personnel to wait for the water to further recede to the point where it was no longer a hazard. It is unknown if this advice was passed on to Command. What is known is that it wasn't followed.
- There was no downstream safety in place with throw bags in case something went wrong.
- There was no upstream spotter in place to warn of oncoming debris.

Incident #16-0094514 (3100 Brookeville Rd/19800 Georgia Ave)

Units on scene:

- A728 - AT703 - AT724 - AT740 - BC704 - BT725
- BT740 - C705C - HCBT11 - M704 - PE728

Units responded for two victims trapped in their car. Personnel again tied a line to a boat, in this instance an inflatable boat. The decision was made to walk out instead of attempting to paddle. As personnel walked farther from the shore, the drag on the line became too much and they decided to cut it. Personnel then reached the victims, placed them in the boat and took them to the far side where they were placed on shore. This was done as the location of the victims and their stranded car was on the far side of the flooded roadway from where units had initially assembled. Rescue personnel then re-entered the flood waters to return to their original point of entry.

Issues to note:

- A unit should have been dispatched or directed to respond to the far side of the incident. This unit would have been able to determine the victims were closer to that shore line and then formulated a safer plan.
- Again, the decision to tether a boat in a swift water environment.

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- Lack of a Plan B. If it was decided that tethering a boat was the proper way to perform this rescue, as soon as it was determined this was not working, personnel should have exited the flood waters to come up with Plan B.
- Walking through flooding water without using a pole to "sound" the bottom is unacceptable. Trip hazards, open manhole covers and road washout are examples of dangers encountered in flood waters.
- Re-entering the flood waters, a recognized IDLH, just to get back to where your unit is parked unnecessarily places personnel at risk.
- The SWBC certified personnel performing this rescue were from Station 40. This highlights the issue of having non-consolidated swift water personnel. Consolidated personnel have additional training opportunities not available to others. They also benefit from the experience gained through running actual calls in a swift water environment on a regular basis.
- No downstream safeties were put in place with throw bags in case something went wrong.
- No upstream spotter in place to warn of oncoming debris.

Incident #16-0094544 (Howard Chapel Rd/4496 Jennings Chapel Rd)

Units on scene:

- C717B - PAT708 - RS717 - SW730 - SW730B

SW730 and SW730B rescued two from the roof of their car using an inflatable boat without incident.

Incident #16-0094527 (22298 Zion Rd/4300 Sundown Rd)

Units on scene:

- EW717 - PE740 - SW710 - SW710B

SW710, SW710B and rescued one from a car using a shallow water crossing technique without incident.

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Incident #16-0094515 (5701 Sundown Rd)

Units on scene:

- C700 - A708 - HCM135 - M708B - PAT708
- PE703 - RS717 - SW730 - SW730B - W717

5 victims rescued from multiple vehicles using a shallow water crossing technique without incident.

Recommendations

1. MCFRS needs to recognize the dangers inherent with flood operations and how they differ from any other type of call. The department should implement a formalized flood operations training program for all operational and command personnel which would provide a better understanding of how to appropriately mitigate these events. This program should also be made part of the annual recertification as it is no different than the confined space, hazmat or trench collapse rescues the department has deemed important enough to mandate annual refresher training. Such a program will need to include at a minimum:
 - Identifying factors involved in Go or No Go situations. Is the water rising or receding?
 - Identifying methods by which non-swift water personnel could perform a rescue while minimizing the risk to themselves and the victims.
 - The importance of the downstream safety. Deploying individuals with throw bags to the downstream side of the incident should be done immediately. Should the victim become separated from his/her vehicle prior to rescue, the downstream safety may be the victim's only chance.
 - The importance of the upstream spotter who has the responsibility to warn personnel of oncoming debris being carried by the flood waters.
 - Proper PPE to be utilized. Personnel should be trained in using PFD's and drysuits. NO TURNOUTS are to be utilized in water rescues or even worn by personnel working at or near the scene.
 - Equipping all apparatus with water rescue equipment. There needs to be enough PFD's, throw bags, sounding poles and helmets for each riding position.
 - The fact that Hot, Warm and Cold zones exist for this type of call.
 - Waterline marking to monitor rising or falling water levels.

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- Consideration of apparatus placement with regard to leaving room for swift water resources responding from farther out.
- Decon of personnel who have entered the flood waters.

2. MCFRS should reconsider the practice of having non-consolidated personnel certified as Swift Water capable. Personnel with this distinction are looked upon as the subject matter experts and it is difficult, if not impossible, for non-consolidated individuals to maintain the same level of competence and experience as those assigned to Stations 10 and 30.

Steps Already Taken

- MCFRS is in the process of formalizing training requirements for all swift water personnel. The department needs to enforce these standards. If training requirements are not met, then that individual needs to be decertified until they are in compliance.
- MCFRS has defined the roles and responsibilities of those certified as standard Boat Operators (BO) and Crew (BC) members, as well as what constitutes a boat. This has helped eliminate much of the confusion surrounding capabilities on calls.
- MCFRS is standardizing the inventory for all boats to ensure that should a boat be needed for swift water/flood operations it will have the necessary equipment to carry out that task.
- MCFRS is in the process of purchasing standardized Boat Support Units. These utility vehicles are used to trailer the various boats in the fleet and function as the "tool box", carrying all the equipment which could potentially be needed during an incident. This inventory is also to be standardized.
- MCFRS has made the concept of Crew Resource Management a part of our culture. This should prevent a recurrence of the voice of a knowledgeable member of a unit being ignored.

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Appendix

Standard dispatch for an inland water rescue event

- 2 boats
- 2 swift water boats
- 1 manpower unit (Engine, Truck or Squad)
- 2 transport units (1 ALS)
- 1 Battalion Chief

*Note: This is the recommended dispatch, but the PSCC can alter this based on call location, available resources or other demands on the system.

Incident Summary

The following is a summary of the incidents dispatched. Units listed are those dispatched. Units in **bold** are those units which arrived on-scene.

1. Incident #16-0094485. 21821 Woodfield Rd.
 - Dispatch 20:16 Last Unit Cleared 20:46
 - **RS717**, BT740, A717, BC705, C717D, M713 PE717, T734.
 - RS717 called for the assignment when they came across a van which appeared to be stuck high water. RS717 canceled the assignment when the van made it through. No additional services needed.
2. Incident #16-0094487. Little Seneca Parkway/22312 Frederick Rd.
 - Dispatch 20:18 Last Unit Cleared 21:11
 - **AT735**, **A734**, **M735**, **BC705**, BT729, SW710, SW710B, BC703, C700, PE731, RS729
 - Dispatched for two cars in the water. Units found 1 car had left the scene and another car was stalled but out of the water. Refusals

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obtained, stalled car marked with police tape, no additional services required.

3. Incident #16-0094498. Mutual Aid to Howard Co.

- Dispatch 20:38 Last Unit Cleared 20:59
- SW710, SW710B
- Dispatched for mutual aid to Howard Co. Units were canceled and returned.

4. Incident #16-0094506. 8900 Watkins Rd/23300 Woodfield Rd.

- Dispatch 20:44 Last Unit Cleared 22:59
- **BT729, BT731, PE713, T734, RS729, M713, C717B, C713B, A717, C700, BC703, BT740, PAT708, PE731, RS717, RS729, T734**
- Dispatched for single vehicle in water with 2 victims trapped. This incident was discussed extensively in the Operational Concerns section.

5. Incident #16-0094514. 3100 Brookville Rd/19800 Georgia Ave.

- Dispatch 20:53 Last Unit Cleared 21:31
- **BT740, BT725, HCBT11*, PE728, AT703, AT724, AT740, A728, M704, BC704, C705C, SW730, SW730B, RS717**
- Dispatched for car in the water with people trapped. This incident was discussed extensively in the Operational Concerns section.
*HCBT11 indicates Howard County Boat 11 which was requested mutual aid

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6. Incident #16-0094515. 5701 Sundown Rd.

- Dispatch 20:58 Last Unit Cleared 22:32
- **SW730, SW730B, PE703, PAT708, RS717, W717, A708, M708B, C700, HCM135****, BT714, SW710, AT735, BC702, PAT718
- Dispatched for single vehicle in water with 2 victims trapped. W717 was enroute to another call when they came upon the scene. W717 called in the assignment with report of 3 vehicles in the water with 5 trapped. With the Swift Water resources coming from a distance, decision was made to begin rescue efforts. As units arrived, C700 took command and directed personnel to make entry. All 5 victims were successfully rescued without incident.
 **HCM135 indicates Howard County Medic 135

7. Incident #16-0094518. 22000 Woodfield Rd/8500 Churchill Downs Rd.

- Dispatch 21:02 Last Unit Cleared 21:12
- **PE717**, A729, BC703, M729, PAT718, PE734
- Dispatched for vehicle in the water. Units canceled when it was learned "victim" called 9-1-1 because he needed to leave his development but was unable due to high water.

8. Incident #16-0094520. 25601 Kings Valley Rd.

- Dispatch 21:09 Last Unit Cleared 21:26
- **PE735**, M735, BC705
- Dispatched for vehicle in the water with 2 victims inside. Found vehicle stalled in shallow water with occupants sitting in another car which was located on roadway out of the water. No service needed.

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9. Incident #16-0094526*. 21500 Zion Rd/4598 Gregg Rd.

- Dispatch 21:19 Last Unit Cleared 22:11
- **BT725, PE717, PAT718, A725, BC703**, BT740, C704, BC702
- Due to multiple calls reporting differing locations this incident was dispatched as two separate events. Units responded for report of one car sinking in flood waters with a victim inside. Units found single car with occupant sitting on the roof. Victim successfully rescued without incident.

10. Incident #16-0094527*. 22298 Zion Rd/4300 Sundown Rd.

- Dispatch 21:21 Last Unit Cleared 22:15
- **SW710, SW710B, PE740, EW717**, A717, BC701, BC704, BC705, T715
- This is the duplicate dispatch for the previous call.

11. Incident #16-0094544. Howard Chapel Rd/4496 Jennings Chapel Rd.

- Dispatch 22:08 Last Unit Cleared 23:38
- **SW730, SW730B, PAT708, RS717, C717B**
- Dispatched for mutual aid to Howard County for vehicle in the water with unknown number of people trapped. Units found single vehicle with two occupants. Rescue made without incident.

12. Incident #16-0094546. Brighton Dam Rd/Bordly Dr.

- Dispatch 22:13 Last Unit Cleared 22:49
- **BT740, PE740, A740, BC704**, BT714, AT740, BC703, C700, C704
- Dispatched for car in the water with single occupant. Units found car in the water but occupant had self-rescued prior to arrival.